

PLUS Search Request Form

JAN 22 2002

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Date 1 / 22 / 02

Serial Number of Application 091 935, 483

Name Jan Hurley (Paralegal)

Art Unit 3700 Phone _____

Building (circle one) CP2 CPK1 Floor 5 Room # B26

Number of Results returned (Minimum 50/ Maximum 300) 100

Keywords to emphasize

PLUS UTILITY ASSESSMENT QUESTIONNAIRE

Application number _____, Work Group _____, has been processed through the BRS PLUS, (RELEASE 2) search system. A floppy disc containing the PLUS search results is attached to the application jacket. When you have used the PLUS-furnished materials, please take a few minutes to circle the answers to the questions below. By completing these questions you assist in assessing the value of this search tool.

- 1). Did PLUS provide you with art useful to this case? YES NO

If YES above, please indicate the ways in which PLUS-located art was/may be of use.
[Circle as many items as apply.]

PROBABLE
102['S]

PROBABLE
103['S]

SECONDARY
REFERENCE[S]

STATE OF ART
REFERENCE[S]

- 2). Did PLUS locate the best available art for this case? YES NO

If NO above, was the best available art: [Circle as many items as apply]

1972 OR
LATER U.S.

PRE-1972
U.S.

FOREIGN
PATENTS

NON-PATENT
PRIOR ART

- 3). PLUS identifies U.S. classifications that may be relevant to an application's field of search.

Did you use this feature?

YES NO

If YES above, did you find the classifications identified by PLUS to be generally relevant?

YES NO

If YES above, did PLUS suggest any relevant classifications that were outside of your normal field of search for this art?

YES NO

- 4). Taking into account all your uses of PLUS, please indicate the utility of the PLUS search to this case. [Circle one]

HIGH
UTILITY

GOOD
UTILITY

SOME
UTILITY

LIMITED LITTLE/NO
UTILITY UTILITY

- 5). How does PLUS compare, in terms of utility, to other "on-line" search systems with which you are familiar? [Circle one.] If you do not, as a rule, use such systems, circle DON'T KNOW.

MORE USEFUL

AS USEFUL

LESS USEFUL

DON'T KNOW

WRITE ANY COMMENTS OR SUGGESTIONS REGARDING PLUS ON THE REVERSE OF THIS SHEET AND RETURN THIS FORM TO YOUR EIC.

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
2593269	July 1987	FRX	126/500
2636410	March 1990	FRX	126/144
3032601	May 1981	DEX	126/500
3125833	April 1983	DEX	126/8
7703284	September 1978	NLX	126/500
2257783	January 1993	GBX	126/512

ART-UNIT: 373

US 5941237

PRIMARY-EXAMINER: Price; Carl D.

ATTY-AGENT-FIRM: Sowell; John B.

ABSTRACT:

The present invention includes a universal combustion chamber preferably shipped from a factory as a separate unit for field installation into a plurality of different fireplace units and includes a top panel and a floor panel connected to sidewall panel to form a complete ready to use gas tight structure. The combustion chamber is fabricated from flat and/or curved panels which are preferably molded from a thick paste slurry of mixed vitreous alumina silicate fibers combined with an aqueous solution of silica binder and fired to form non-porous gas tight panels which are interconnected to form a gas tight combustion chamber. The connecting joints are preferably reinforced by the addition of a high temperature adhesive added to the mating joints. The joints may be further reinforced and/or sealed by mechanical reinforcing at or in the joints. The joints may be eliminated by forming a one piece combustion chamber on forming molds that are designed to be separated from a formed but uncured combustion chamber.

18 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a universal combustion chamber useful for installation in metal fabricated fireplaces or a stand alone combustion chamber. More particularly, the present invention relates to an assembled non-porous cast fiber-reinforced combustion chamber that is machinable in its cured stage and moldable in its uncured preformed stage.

2. Description of the Prior Art

Heretofore, panels made from high temperature ceramic materials were known. Heat-N-Glow of Savage, Minn. has incorporated high temperature ceramic panels under the gas burners of some of their gas fireplaces in the form of loose panels. Heat-N-Glow has also incorporated both refractory firebrick and cast ceramic blocks or panels in numerous stoves and fireplaces for insulation purposes as well as for aesthetic purposes.

Manufacturers of commercial and home heating systems have employed cast refractory fireboxes in the base of furnaces. Such refractory fireboxes are protected against exhaust leakage because they are placed in an area where leakage would not escape from the furnace or boiler or are completely backed up by another non-porous sheet or wall.

Unvented or non-vented gas heaters and fireplaces are not concerned with preventing escape of burned exhaust gasses into a living area, thus, do not

totally enclose the combustion chamber or burners. Such unvented gas stoves have been known to deplete the oxygen supply in a living area.

Applicants are not aware of any gas fireplace which employs a gas combustion chamber that virtually eliminates the need for any fireplace enclosure or shroud around the gas combustion chamber for heat protection.

It would be desirable to provide a universal combustion chamber which would accommodate a variety of gas burners and a variety of vents. It would further be desirable to provide an assembled leak proof combustion chamber made from non-porous cast fiber reinforced moldable and machinable material that is cool enough at its outer surface to be installed without additional insulation or heat protective barriers on the outside of the combustion chamber.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide an assembled gas fireplace combustion chamber that comprises a plurality of non-porous cast fiber reinforced panels.

It is another principal object of the present invention to provide a fabricated kit of non-porous cast fiber reinforced panels that are accurately formed to be assembled into a leak proof fireplace combustion chamber.

It is another principal object of the present invention to provide an assembled prefabricated non-porous cast fiber reinforced combustion chamber that is machined and ready for installation of a gas burner.

It is another principal object of the present invention to provide a plurality of assembled or unassembled machined non-porous cast fiber reinforced panels that when assembled form a combined combustion chamber and fireplace ready for completion by addition of a gas burner and/or a gas vent.

It is yet another object of the present invention to provide a universal gas combustion chamber/fireplace unit that does not require a metal enclosure for operation in a fireplace.

It is yet another principal object of the present invention to provide a universal gas combustion chamber/fireplace unit that is operable with a gas burner and has an outer wall temperature cool enough to meet standards for zero clearance installations.

It is another object of the present invention to lower the cost of manufacturing gas fireplace units while increasing their efficiency by combining the functions normally associated with a separate gas combustion chamber and fireplace enclosure.

According to these and other objects of the present invention there is provided a universal gas combustion chamber of the type having a bottom floor panel, a top panel and vertical side panels assembled to form a fireplace when a gas burner is installed in or on the floor panel. Said gas combustion chamber panels being made from a moldable slurry of refractory ceramic fibers (preferably vitreous alumina silicate fibers) and a binder (preferably amorphous silica) to form strong machinable fiber reinforced panels.

DRAWING DESCRIPTION:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a section in side elevation taken through a novel assembled non-porous cast ceramic fiber combustion chamber having a burner opening in the floor panel and an exhaust opening in the top panel and installed flush mounted as a vented gas fireplace;

FIG. 2 is a front view of the vented fireplace shown in FIG. 1 showing a decorative surround with a simulated brick pattern which compliments the pattern in the interior of the non-porous cast ceramic combustion chamber;